

# $a_2(1320)$

$$I^G(J^{PC}) = 1^-(2^{++})$$

## $a_2(1320)$ MASS

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>
<b>1318.0±0.6 OUR NEW AVERAGE</b>	Includes data from the 4 datablocks that follow this one. Error includes scale factor of 1.1. [1318.1 ± 0.6 MeV OUR 1998 AVERAGE Scale factor = 1.1]

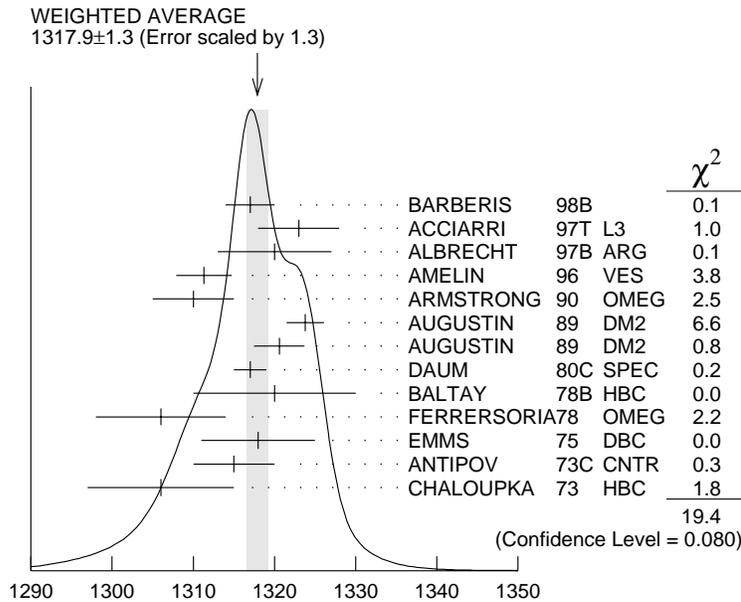
### 3π MODE

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
The data in this block is included in the average printed for a previous datablock.					

**1317.9± 1.3 OUR NEW AVERAGE** Error includes scale factor of 1.3. See the ideogram below. [1318.0 ± 1.5 MeV OUR 1998 AVERAGE Scale factor = 1.3]

1317 ± 3		BARBERIS	98B		450 $p p \rightarrow p_f \pi^+ \pi^- \pi^0 p_s$
1323 ± 4 ± 3		ACCIARRI	97T L3		$e^+ e^- \rightarrow e^+ e^- \pi^+ \pi^- \pi^0$
1320 ± 7		ALBRECHT	97B ARG		$e^+ e^- \rightarrow e^+ e^- \pi^+ \pi^- \pi^0$
1311.3± 1.6±3.0	72400	AMELIN	96 VES		36 $\pi^- p \rightarrow \pi^+ \pi^- \pi^0 n$
1310 ± 5		ARMSTRONG	90 OMEG 0		300.0 $p p \rightarrow p p \pi^+ \pi^- \pi^0$
1323.8± 2.3	4022	AUGUSTIN	89 DM2 ±		$J/\psi \rightarrow \rho^\pm a_2^\mp$
1320.6± 3.1	3562	AUGUSTIN	89 DM2 0		$J/\psi \rightarrow \rho^0 a_2^0$
1317 ± 2	25000	<sup>1</sup> DAUM	80C SPEC -		63,94 $\pi^- p \rightarrow 3\pi p$
1320 ± 10	1097	<sup>1</sup> BALTAY	78B HBC +0		15 $\pi^+ p \rightarrow p 4\pi$
1306 ± 8		FERRERSORIA	78 OMEG -		9 $\pi^- p \rightarrow p 3\pi$
1318 ± 7	1600	<sup>1</sup> EMMS	75 DBC 0		4 $\pi^+ n \rightarrow p(3\pi)^0$
1315 ± 5		<sup>1</sup> ANTIPOV	73C CNTR -		25,40 $\pi^- p \rightarrow p \eta \pi^-$
1306 ± 9	1580	CHALOUPKA	73 HBC -		3.9 $\pi^- p$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
1305 ± 14		CONDO	93 SHF		$\gamma p \rightarrow \eta \pi^+ \pi^+ \pi^-$
1310 ± 2		<sup>1</sup> EVANGELISTA	81 OMEG -		12 $\pi^- p \rightarrow 3\pi p$
1343 ± 11	490	BALTAY	78B HBC 0		15 $\pi^+ p \rightarrow \Delta 3\pi$
1309 ± 5	5000	BINNIE	71 MMS -		$\pi^- p$ near $a_2$ threshold
1299 ± 6	28000	BOWEN	71 MMS -		5 $\pi^- p$
1300 ± 6	24000	BOWEN	71 MMS +		5 $\pi^+ p$
1309 ± 4	17000	BOWEN	71 MMS -		7 $\pi^- p$
1306 ± 4	941	ALSTON-...	70 HBC +		7.0 $\pi^+ p \rightarrow 3\pi p$

<sup>1</sup> From a fit to  $J^P = 2^+ \rho\pi$  partial wave.



$a_2(1320)$  mass,  $3\pi$  mode (MeV)

### $K^\pm K_S^0$ MODE

VALUE (MeV)    EVTS    DOCUMENT ID    TECN    CHG    COMMENT

The data in this block is included in the average printed for a previous datablock.

#### 1318.1± 0.7 OUR AVERAGE

1319 ± 5	4700	<sup>2,3</sup> CLELAND	82B SPEC	+	50 $\pi^+ p \rightarrow K_S^0 K^+ p$
1324 ± 6	5200	<sup>2,3</sup> CLELAND	82B SPEC	-	50 $\pi^- p \rightarrow K_S^0 K^- p$
1320 ± 2	4000	CHABAUD	80 SPEC	-	17 $\pi^- A \rightarrow K_S^0 K^- A$
1312 ± 4	11000	CHABAUD	78 SPEC	-	9.8 $\pi^- p \rightarrow K^- K_S^0 p$
1316 ± 2	4730	CHABAUD	78 SPEC	-	18.8 $\pi^- p \rightarrow K^- K_S^0 p$
1318 ± 1		<sup>2,4</sup> MARTIN	78D SPEC	-	10 $\pi^- p \rightarrow K_S^0 K^- p$
1320 ± 2	2724	MARGULIE	76 SPEC	-	23 $\pi^- p \rightarrow K^- K_S^0 p$
1313 ± 4	730	FOLEY	72 CNTR	-	20.3 $\pi^- p \rightarrow K^- K_S^0 p$
1319 ± 3	1500	<sup>4</sup> GRAYER	71 ASPK	-	17.2 $\pi^- p \rightarrow K^- K_S^0 p$

••• We do not use the following data for averages, fits, limits, etc. •••

1330 ± 11	1000	<sup>2,3</sup> CLELAND	82B SPEC	+	30 $\pi^+ p \rightarrow K_S^0 K^+ p$
1324 ± 5	350	HYAMS	78 ASPK	+	12.7 $\pi^+ p \rightarrow K^+ K_S^0 p$

<sup>2</sup>From a fit to  $J^P = 2^+$  partial wave.

<sup>3</sup> Number of events evaluated by us.

<sup>4</sup> Systematic error in mass scale subtracted.

### $\eta\pi$ MODE

VALUE (MeV)      EVTS      DOCUMENT ID      TECN      CHG      COMMENT

The data in this block is included in the average printed for a previous datablock.

#### 1318.0±1.5 OUR AVERAGE

1317 ±1 ±2		THOMPSON	97	MPS		18 $\pi^- p \rightarrow \eta\pi^- p$
1315 ±5 ±2		<sup>5</sup> AMSLER	94D	CBAR		0.0 $\bar{p} p \rightarrow \pi^0\pi^0\eta$
1325.1±5.1		AOYAGI	93	BKEI		$\pi^- p \rightarrow \eta\pi^- p$
1317.7±1.4±2.0		BELADIDZE	93	VES		37 $\pi^- N \rightarrow \eta\pi^- N$
1323 ±8	1000	<sup>6</sup> KEY	73	OSPK	-	6 $\pi^- p \rightarrow p\pi^- \eta$

• • • We do not use the following data for averages, fits, limits, etc. • • •

1324 ±5		ARMSTRONG	93C	E760	0	$\bar{p} p \rightarrow \pi^0\eta\eta \rightarrow 6\gamma$
1336.2±1.7	2561	DELFOSSÉ	81	SPEC	+	$\pi^\pm p \rightarrow p\pi^\pm \eta$
1330.7±2.4	1653	DELFOSSÉ	81	SPEC	-	$\pi^\pm p \rightarrow p\pi^\pm \eta$
1324 ±8	6200	<sup>6,7</sup> CONFORTO	73	OSPK	-	6 $\pi^- p \rightarrow p\pi^- \eta$

<sup>5</sup> The systematic error of 2 MeV corresponds to the spread of solutions.

<sup>6</sup> Error includes 5 MeV systematic mass-scale error.

<sup>7</sup> Missing mass with enriched MMS =  $\eta\pi^-$ ,  $\eta = 2\gamma$ .

### $\eta'\pi$ MODE

VALUE (MeV)      DOCUMENT ID      TECN      COMMENT

The data in this block is included in the average printed for a previous datablock.

<b>1327.0±10.7</b>		BELADIDZE	93	VES		37 $\pi^- N \rightarrow \eta'\pi^- N$
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## $a_2(1320)$ WIDTH

### 3 $\pi$ MODE

VALUE (MeV)      EVTS      DOCUMENT ID      TECN      CHG      COMMENT

**104.7± 1.9 OUR NEW AVERAGE** [104.1 ± 2.0 MeV OUR 1998 AVERAGE]

120 ±10		BARBERIS	98B			450 $p p \rightarrow p_f \pi^+ \pi^- \pi^0 p_s$
105 ±10 ±11		ACCIARRI	97T	L3		$e^+ e^- \rightarrow e^+ e^- \pi^+ \pi^- \pi^0$
120 ±10		ALBRECHT	97B	ARG		$e^+ e^- \rightarrow e^+ e^- \pi^+ \pi^- \pi^0$
103.0± 6.0± 3.3	72400	AMELIN	96	VES		36 $\pi^- p \rightarrow \pi^+ \pi^- \pi^0 n$
120 ±10		ARMSTRONG	90	OMEG	0	300.0 $p p \rightarrow p p \pi^+ \pi^- \pi^0$
107.0± 9.7	4022	AUGUSTIN	89	DM2	±	$J/\psi \rightarrow \rho^\pm a_2^\mp$
118.5±12.5	3562	AUGUSTIN	89	DM2	0	$J/\psi \rightarrow \rho^0 a_2^0$
97 ± 5		<sup>8</sup> EVANGELISTA	81	OMEG	-	12 $\pi^- p \rightarrow 3\pi p$
96 ± 9	25000	<sup>8</sup> DAUM	80C	SPEC	-	63,94 $\pi^- p \rightarrow 3\pi p$

110	$\pm 15$	1097	<sup>8</sup> BALTAY	78B	HBC	+0	$15 \pi^+ p \rightarrow p 4\pi$
112	$\pm 18$	1600	<sup>8</sup> EMMS	75	DBC	0	$4 \pi^+ n \rightarrow p(3\pi)^0$
122	$\pm 14$	1200	<sup>8,9</sup> WAGNER	75	HBC	0	$7 \pi^+ p \rightarrow \Delta^{++}(3\pi)^0$
115	$\pm 15$		<sup>8</sup> ANTIPOV	73C	CNTR	-	$25,40 \pi^- p \rightarrow p \eta \pi^-$
99	$\pm 15$	1580	CHALOUKKA	73	HBC	-	$3.9 \pi^- p$
105	$\pm 5$	28000	BOWEN	71	MMS	-	$5 \pi^- p$
99	$\pm 5$	24000	BOWEN	71	MMS	+	$5 \pi^+ p$
103	$\pm 5$	17000	BOWEN	71	MMS	-	$7 \pi^- p$

• • • We do not use the following data for averages, fits, limits, etc. • • •

120	$\pm 40$		CONDO	93	SHF		$\gamma p \rightarrow \eta \pi^+ \pi^+ \pi^-$
115	$\pm 14$	490	BALTAY	78B	HBC	0	$15 \pi^+ p \rightarrow \Delta 3\pi$
72	$\pm 16$	5000	BINNIE	71	MMS	-	$\pi^- p$ near $a_2$ threshold
79	$\pm 12$	941	ALSTON-...	70	HBC	+	$7.0 \pi^+ p \rightarrow 3\pi p$

<sup>8</sup> From a fit to  $J^P = 2^+ \rho\pi$  partial wave.

<sup>9</sup> Width errors enlarged by us to  $4\Gamma/\sqrt{N}$ ; see the note with the  $K^*(892)$  mass.

## $K^\pm K_S^0$ AND $\eta\pi$ MODES

VALUE (MeV)	DOCUMENT ID
<b>107 <math>\pm 5</math> OUR ESTIMATE</b>	
<b>110.3 <math>\pm 1.7</math> OUR AVERAGE</b>	Includes data from the 2 datablocks that follow this one.

## $K^\pm K_S^0$ MODE

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
The data in this block is included in the average printed for a previous datablock.					

### 109.8 $\pm 2.4$ OUR AVERAGE

112	$\pm 20$	4700	<sup>10,11</sup> CLELAND	82B	SPEC	+	$50 \pi^+ p \rightarrow K_S^0 K^+ p$
120	$\pm 25$	5200	<sup>10,11</sup> CLELAND	82B	SPEC	-	$50 \pi^- p \rightarrow K_S^0 K^- p$
106	$\pm 4$	4000	CHABAUD	80	SPEC	-	$17 \pi^- A \rightarrow K_S^0 K^- A$
126	$\pm 11$	11000	CHABAUD	78	SPEC	-	$9.8 \pi^- p \rightarrow K^- K_S^0 p$
101	$\pm 8$	4730	CHABAUD	78	SPEC	-	$18.8 \pi^- p \rightarrow K^- K_S^0 p$
113	$\pm 4$		<sup>10,12</sup> MARTIN	78D	SPEC	-	$10 \pi^- p \rightarrow K_S^0 K^- p$
105	$\pm 8$	2724	<sup>12</sup> MARGULIE	76	SPEC	-	$23 \pi^- p \rightarrow K^- K_S^0 p$
113	$\pm 19$	730	FOLEY	72	CNTR	-	$20.3 \pi^- p \rightarrow K^- K_S^0 p$
123	$\pm 13$	1500	<sup>12</sup> GRAYER	71	ASPK	-	$17.2 \pi^- p \rightarrow K^- K_S^0 p$

• • • We do not use the following data for averages, fits, limits, etc. • • •

121	$\pm 51$	1000	<sup>10,11</sup> CLELAND	82B	SPEC	+	$30 \pi^+ p \rightarrow K_S^0 K^+ p$
110	$\pm 18$	350	HYAMS	78	ASPK	+	$12.7 \pi^+ p \rightarrow K^+ K_S^0 p$

<sup>10</sup> From a fit to  $J^P = 2^+$  partial wave.

<sup>11</sup> Number of events evaluated by us.

<sup>12</sup> Width errors enlarged by us to  $4\Gamma/\sqrt{N}$ ; see the note with the  $K^*(892)$  mass.

## $\eta\pi$ MODE

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
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The data in this block is included in the average printed for a previous datablock.

### 111.0 ± 2.5 OUR AVERAGE

112 ± 3 ± 2		<sup>13</sup> AMSLER	94D	CBAR	0.0 $\bar{p}p \rightarrow \pi^0\pi^0\eta$
103 ± 6 ± 3		BELADIDZE	93	VES	37 $\pi^- N \rightarrow \eta\pi^- N$
112.2 ± 5.7	2561	DELFOSSÉ	81	SPEC +	$\pi^\pm p \rightarrow p\pi^\pm\eta$
116.6 ± 7.7	1653	DELFOSSÉ	81	SPEC -	$\pi^\pm p \rightarrow p\pi^\pm\eta$
108 ± 9	1000	KEY	73	OSPK -	6 $\pi^- p \rightarrow p\pi^- \eta$

• • • We do not use the following data for averages, fits, limits, etc. • • •

127 ± 2 ± 2		<sup>14</sup> THOMPSON	97	MPS	18 $\pi^- p \rightarrow \eta\pi^- p$
118 ± 10		ARMSTRONG	93C	E760 0	$\bar{p}p \rightarrow \pi^0\eta\eta \rightarrow 6\gamma$
104 ± 9	6200	<sup>15</sup> CONFORTO	73	OSPK -	6 $\pi^- p \rightarrow p\pi^- \eta$

<sup>13</sup>The systematic error of 2 MeV corresponds to the spread of solutions.

<sup>14</sup>Resolution is not unfolded.

<sup>15</sup>Missing mass with enriched MMS =  $\eta\pi^-$ ,  $\eta = 2\gamma$ .

## $\eta'\pi$ MODE

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
106 ± 32	BELADIDZE 93	VES	37 $\pi^- N \rightarrow \eta'\pi^- N$

## $a_2(1320)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )	Scale factor/ Confidence level
$\Gamma_1$ $\rho\pi$	(70.1 ± 2.7) %	S=1.2
$\Gamma_2$ $\eta\pi$	(14.5 ± 1.2) %	
$\Gamma_3$ $\omega\pi\pi$	(10.6 ± 3.2) %	S=1.3
$\Gamma_4$ $K\bar{K}$	( 4.9 ± 0.8) %	
$\Gamma_5$ $\eta'(958)\pi$	( 5.3 ± 0.9) × 10 <sup>-3</sup>	
$\Gamma_6$ $\pi^\pm\gamma$	( 2.8 ± 0.6) × 10 <sup>-3</sup>	
$\Gamma_7$ $\gamma\gamma$	( 9.4 ± 0.7) × 10 <sup>-6</sup>	
$\Gamma_8$ $\pi^+\pi^-\pi^-$	< 8 %	CL=90%
$\Gamma_9$ $e^+e^-$	< 2.3 × 10 <sup>-7</sup>	CL=90%

## CONSTRAINED FIT INFORMATION

An overall fit to 5 branching ratios uses 18 measurements and one constraint to determine 4 parameters. The overall fit has a  $\chi^2 = 9.3$  for 15 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients  $\langle \delta x_i \delta x_j \rangle / (\delta x_i \delta x_j)$ , in percent, from the fit to the branching fractions,  $x_i \equiv \Gamma_i / \Gamma_{\text{total}}$ . The fit constrains the  $x_i$  whose labels appear in this array to sum to one.

$x_2$	10		
$x_3$	-89	-46	
$x_4$	-1	-2	-24
	$x_1$	$x_2$	$x_3$

### $a_2(1320)$ PARTIAL WIDTHS

$\Gamma(\pi^\pm \gamma)$	VALUE (keV)	DOCUMENT ID	TECN	CHG	COMMENT	$\Gamma_6$	
<b>295 ± 60</b>		CIHANGIR	82	SPEC	+	200 $\pi^+ A$	
• • •						We do not use the following data for averages, fits, limits, etc. • • •	
461 ± 110		MAY	77	SPEC	±	9.7 $\gamma A$	

$\Gamma(\gamma\gamma)$	VALUE (keV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT	$\Gamma_7$
<b>1.00 ± 0.06 OUR AVERAGE</b>							
0.98 ± 0.05 ± 0.09			ACCIARRI	97T L3		$e^+ e^- \rightarrow e^+ e^- \pi^+ \pi^- \pi^0$	
0.96 ± 0.03 ± 0.13			ALBRECHT	97B ARG		$e^+ e^- \rightarrow e^+ e^- \pi^+ \pi^- \pi^0$	
1.26 ± 0.26 ± 0.18	36		BARU	90 MD1		$e^+ e^- \rightarrow e^+ e^- \pi^+ \pi^- \pi^0$	
1.00 ± 0.07 ± 0.15	415		BEHREND	90C CELL	0	$e^+ e^- \rightarrow e^+ e^- \pi^+ \pi^- \pi^0$	
1.03 ± 0.13 ± 0.21			BUTLER	90 MRK2		$e^+ e^- \rightarrow e^+ e^- \pi^+ \pi^- \pi^0$	
1.01 ± 0.14 ± 0.22	85		OEST	90 JADE		$e^+ e^- \rightarrow e^+ e^- \pi^0 \eta$	
0.90 ± 0.27 ± 0.15	56	<sup>16</sup>	ALTHOFF	86 TASS	0	$e^+ e^- \rightarrow e^+ e^- 3\pi$	
1.14 ± 0.20 ± 0.26		<sup>17</sup>	ANTREASYAN	86 CBAL	0	$e^+ e^- \rightarrow e^+ e^- \pi^0 \eta$	
1.06 ± 0.18 ± 0.19			BERGER	84C PLUT	0	$e^+ e^- \rightarrow e^+ e^- 3\pi$	
• • •						We do not use the following data for averages, fits, limits, etc. • • •	
0.81 ± 0.19 <sup>+0.42</sup> <sub>-0.11</sub>	35	<sup>16</sup>	BEHREND	83B CELL	0	$e^+ e^- \rightarrow e^+ e^- 3\pi$	
0.77 ± 0.18 ± 0.27	22	<sup>17</sup>	EDWARDS	82F CBAL	0	$e^+ e^- \rightarrow e^+ e^- \pi^0 \eta$	

<sup>16</sup> From  $\rho\pi$  decay mode.

<sup>17</sup> From  $\eta\pi^0$  decay mode.

$\Gamma(e^+e^-)$					$\Gamma_9$
VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT	
<25	90	VOROBYEV	88 ND	$e^+e^- \rightarrow \pi^0\eta$	

 **$a_2(1320) \Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$** 

$\Gamma(K\bar{K}) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$				$\Gamma_4\Gamma_7/\Gamma$
VALUE (keV)	DOCUMENT ID	TECN	COMMENT	
<b>0.126±0.007±0.028</b>	<sup>18</sup> ALBRECHT	90G ARG	$e^+e^- \rightarrow e^+e^-K^+K^-$	
••• We do not use the following data for averages, fits, limits, etc. •••				
0.081±0.006±0.027	<sup>19</sup> ALBRECHT	90G ARG	$e^+e^- \rightarrow e^+e^-K^+K^-$	

<sup>18</sup> Using an incoherent background.<sup>19</sup> Using a coherent background. **$a_2(1320)$  BRANCHING RATIOS**

$\Gamma(K\bar{K})/\Gamma(\rho\pi)$					$\Gamma_4/\Gamma_1$
VALUE	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
<b>0.070±0.012 OUR FIT</b>					
<b>0.078±0.017</b>		CHABAUD	78 RVUE		
••• We do not use the following data for averages, fits, limits, etc. •••					
0.011±0.003		<sup>20</sup> BERTIN	98B OBLX		$0.0 \bar{p}p \rightarrow K^\pm K_S^0 \pi^\mp$
0.056±0.014	50	<sup>21</sup> CHALOUPKA	73 HBC	-	3.9 $\pi^- p$
0.097±0.018	113	<sup>21</sup> ALSTON-...	71 HBC	+	7.0 $\pi^+ p$
0.06 ±0.03		<sup>21</sup> ABRAMOVI...	70B HBC	-	3.93 $\pi^- p$
0.054±0.022		<sup>21</sup> CHUNG	68 HBC	-	3.2 $\pi^- p$

<sup>20</sup> Using 4 $\pi$  data from BERTIN 97D.<sup>21</sup> Included in CHABAUD 78 review.

$\Gamma(\eta\pi)/[\Gamma(\rho\pi) + \Gamma(\eta\pi) + \Gamma(K\bar{K})]$					$\Gamma_2/(\Gamma_1+\Gamma_2+\Gamma_4)$
VALUE	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
<b>0.162±0.012 OUR FIT</b>					
<b>0.140±0.028 OUR AVERAGE</b>					
0.13 ±0.04		ESPIGAT	72 HBC	±	0.0 $\bar{p}p$
0.15 ±0.04	34	BARNHAM	71 HBC	+	3.7 $\pi^+ p$

$\Gamma(\eta\pi)/\Gamma(\rho\pi)$					$\Gamma_2/\Gamma_1$
VALUE	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
<b>0.207±0.018 OUR FIT</b>					
<b>0.213±0.020 OUR AVERAGE</b>					
0.18 ±0.05		FORINO	76 HBC		11 $\pi^- p$
0.22 ±0.05	52	ANTIPOV	73 CNTR	-	40 $\pi^- p$
0.211±0.044	149	CHALOUPKA	73 HBC	-	3.9 $\pi^- p$
0.246±0.042	167	ALSTON-...	71 HBC	+	7.0 $\pi^+ p$
0.25 ±0.09	15	BOECKMANN	70 HBC	+	5.0 $\pi^+ p$
0.23 ±0.08	22	ASCOLI	68 HBC	-	5 $\pi^- p$
0.12 ±0.08		CHUNG	68 HBC	-	3.2 $\pi^- p$
0.22 ±0.09		CONTE	67 HBC	-	11.0 $\pi^- p$

$\Gamma(\eta'(958)\pi)/\Gamma_{\text{total}}$   $\Gamma_5/\Gamma$

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>	
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.006	95	ALDE	92B	GAM2	38,100 $\pi^- p \rightarrow \eta' \pi^0 n$	
<0.02	97	BARNHAM	71	HBC	+	3.7 $\pi^+ p$
0.004 ± 0.004		BOESEBECK	68	HBC	+	8 $\pi^+ p$

$\Gamma(\eta'(958)\pi)/\Gamma(\rho\pi)$   $\Gamma_5/\Gamma_1$

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>	
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.011	90	EISENSTEIN	73	HBC	-	5 $\pi^- p$
<0.04		ALSTON-...	71	HBC	+	7.0 $\pi^+ p$
0.04 $^{+0.03}_{-0.04}$		BOECKMANN	70	HBC	0	5.0 $\pi^+ p$

$\Gamma(K\bar{K})/[\Gamma(\rho\pi) + \Gamma(\eta\pi) + \Gamma(K\bar{K})]$   $\Gamma_4/(\Gamma_1+\Gamma_2+\Gamma_4)$

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>	
<b>0.054 ± 0.009 OUR FIT</b>						
<b>0.048 ± 0.012 OUR AVERAGE</b>						
0.05 ± 0.02		TOET	73	HBC	+	5 $\pi^+ p$
0.09 ± 0.04		TOET	73	HBC	0	5 $\pi^+ p$
0.03 ± 0.02	8	DAMERI	72	HBC	-	11 $\pi^- p$
0.06 ± 0.03	17	BARNHAM	71	HBC	+	3.7 $\pi^+ p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
0.020 ± 0.004		<sup>22</sup> ESPIGAT	72	HBC	±	0.0 $\bar{p} p$
<sup>22</sup> Not averaged because of discrepancy between masses from $K\bar{K}$ and $\rho\pi$ modes.						

$\Gamma(\pi^+ \pi^- \pi^-)/\Gamma(\rho\pi)$   $\Gamma_8/\Gamma_1$

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>	
<b>&lt;0.12</b>	90	ABRAMOVI...	70B	HBC	-	3.93 $\pi^- p$

$\Gamma(\pi^\pm \gamma)/\Gamma_{\text{total}}$   $\Gamma_6/\Gamma$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.005 $^{+0.005}_{-0.003}$	<sup>23</sup> EISENBERG	72	HBC	4.3,5.25,7.5 $\gamma p$
<sup>23</sup> Pion-exchange model used in this estimation.				

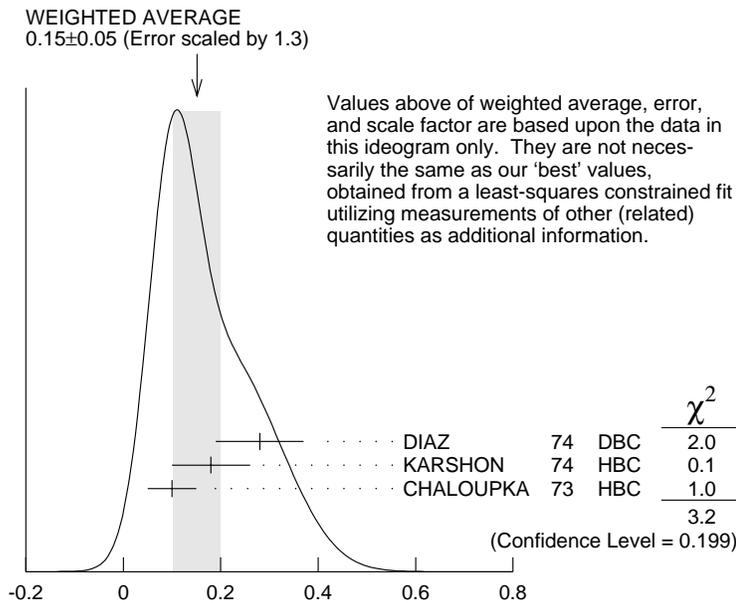
$\Gamma(\omega\pi\pi)/\Gamma(\rho\pi)$   $\Gamma_3/\Gamma_1$

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>	
<b>0.15 ± 0.05 OUR FIT</b> Error includes scale factor of 1.3.						
<b>0.15 ± 0.05 OUR AVERAGE</b> Error includes scale factor of 1.3. See the ideogram below.						
0.28 ± 0.09	60	DIAZ	74	DBC	0	6 $\pi^+ n$
0.18 ± 0.08		<sup>24</sup> KARSHON	74	HBC		Avg. of above two
0.10 ± 0.05	279	CHALOUPIKA	73	HBC	-	3.9 $\pi^- p$

• • • We do not use the following data for averages, fits, limits, etc. • • •

0.29±0.08	140	<sup>24</sup> KARSHON	74	HBC	0	4.9 $\pi^+ p$
0.10±0.04	60	<sup>24</sup> KARSHON	74	HBC	+	4.9 $\pi^+ p$
0.19±0.08		DEFOIX	73	HBC	0	0.7 $\bar{p} p$

<sup>24</sup> KARSHON 74 suggest an additional  $I = 0$  state strongly coupled to  $\omega\pi\pi$  which could explain discrepancies in branching ratios and masses. We use a central value and a systematic spread.



$$\Gamma(\omega\pi\pi)/\Gamma(\rho\pi)$$

$$\Gamma(\eta'(958)\pi)/\Gamma(\eta\pi)$$

$$\Gamma_5/\Gamma_2$$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>0.037±0.006 OUR AVERAGE</b>			
0.032±0.009	ABELE	97C	CBAR 0.0 $\bar{p} p \rightarrow \pi^0 \pi^0 \eta'$
0.047±0.010±0.004	<sup>25</sup> BELADIDZE	93	VES 37 $\pi^- N \rightarrow a_2^- N$
0.034±0.008±0.005	BELADIDZE	92	VES 36 $\pi^- C \rightarrow a_2^- C$

<sup>25</sup> Using  $B(\eta' \rightarrow \pi^+ \pi^- \eta) = 0.441$ ,  $B(\eta \rightarrow \gamma\gamma) = 0.389$  and  $B(\eta \rightarrow \pi^+ \pi^- \pi^0) = 0.236$ .

$$\Gamma(K\bar{K})/\Gamma(\eta\pi)$$

$$\Gamma_4/\Gamma_2$$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.08±0.02	<sup>26</sup> BERTIN	98B	OBLX 0.0 $\bar{p} p \rightarrow K^\pm K_S \pi^\mp$

<sup>26</sup> Using  $\eta\pi\pi$  data from AMSLER 94D.

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